

METHODOLOGY FOR THE EFFECTIVE STABILIZATION OF TIN-OXIDE-BASED
OXIDATION/REDUCTION CATALYSTS

Abstract of the Disclosure

The invention described herein involves a novel approach to the production of oxidation/reduction catalytic systems. The present invention serves to stabilize the tin oxide reducible metal-oxide coating by co-incorporating at least another metal-oxide species, such as zirconium. In one embodiment, a third metal-oxide species is incorporated, selected from the group consisting of cerium, lanthanum, hafnium, and ruthenium. The incorporation of the additional metal oxide components serves to stabilize the active tin-oxide layer in the catalytic process during high-temperature operation in a reducing environment (e.g., automobile exhaust). Moreover, the additional metal oxides are active components due to their oxygen-retention capabilities. Together, these features provide a mechanism to extend the range of operation of the tin-oxide-based catalyst system for automotive applications, while maintaining the existing advantages.

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